REMARKS/ARGUMENTS

Claims 1-30 are active in this case.

The Office has also again objected to the Inventors Oath/Declaration likely due to the scan quality of the PTO's image. As the original document is plainly and legibly written, another copy of that Declaration is provided here.

The claims are directed to the selection of particular compositions that are useful for the detection of neutrons. Indeed, the specification (pages 4-5) provides data demonstrating particular advantages of the material compared to other scintillating materials known. In particular, we note the advantages when there was a change from Cl to Br and the molar % of Ce was increased (compare 2 to 3-5 in Table 1 on page 4).

Applicants thank the Office for indicating that Claims 1-20 are allowed. In view of the following discussion and the attached evidence, it is requested that Claims 21-30 also be included in the claims that are allowed.

The rejection of 21, 22 and 23-30 as being obvious in view of the publication of van Loef *et al* has been maintained The rejection focused on the general formula provide on page 8482 to assert that van Loef suggests the possibility of using Rb and/or I even though van Loef *et al* does not explicitly describe the claimed materials. These specific claims are not specifically defined as being included in a reactor that the van Loef *et al* publication does not describe the use of these materials as neutron detectors.

As explained previously, the specification (pages 4-5) provides data demonstrating particular advantages of the material compared to other scintillating materials known. In particular, the advantages when there was a change from Cl to Br and the molar % of Ce was increased should be noted (compare 2 to 3-5 in Table 1 on page 4).

In support of the patentability of the patentability of Claims 21-30, Applicants provide a copy of a portion of a PhD Thesis by M.D. Birowosuto published in 2007. This work was

carried out in the team of Prof Van Eijk and P.Dorenbos which are both named inventors of present application (see the top of page 1 of the attached copy "Dit proefschrift is goedgekeurd door de promotor(en)" which loosely translates to "This dissertation has been approved by the promoter").

Claims 21 and 22 are independent claims within the claim set rejected and therefore are discussed separately.

Claim 21 defines the material as $Rb_2LiLnX_6:xCe^{3+}$

Dr. Birowosuto's Thesis at page 140 shows that the α/β ratio regarding different compositions including Rb_2LiYBr_6 doped 1% Ce^{3+}. Two values were found: 0.79 and 0.82. This ratio α/β is the same as $F\gamma$ (pulse height discrimination) used in the present application, see Table 1 of the present application. As can be seen by example 3 in the present application, Cs_2LiYBr_6 doped 1% Ce^{3+} has an $F\gamma$ value ($=\alpha/\beta$) of 0.76 – 0.75. This means that Rb is better than Cs as far as this parameter is concerned. This parameter is important in case of detectors detecting both gamma and neutrons. The detector must be able to separate the gamma and the neutron detection. If the $F\gamma$ value ($=\alpha/\beta$) is higher, the separation is better. Thus, these results show that the Rb composition is better than the Cs composition something not at all suggested by van Loef.

Claim 22 defines the material as $Cs_{(2-z)}Rb_zLiLn_{(1-x)}I6:xCe$.

Dr. Birowosuto's thesis shows results in the table 10.5 page 145 regarding iodide compounds: see first (Cs_2LiLuI_6) and third (Rb_2LiYI_6) compound. The fast and intermediate components are the best of the series. With Rb_2LiYI_6:0.5%Ce, **31%** of the signal is **fast** and only **16**% of the signal is **slow**. A good crystal has the highest amount of fast component. This can be compared with Rb_2LiYBr_6:0.5%Ce (see table 10.2 page 141)where **only 3%** of the signal is **fast** and **74%** of the signal is **slow**. This demonstrates the superiority of the iodide over the bromide also something not at all suggested by van Loef.

As van Loef provides no suggestion for the specific materials in Claims 21-30 nor the advantages one achieves with the selection of such materials, Claims 21-30 cannot be considered obvious in view of van Loef.

Withdrawal of the rejection is requested.

A Notice of Allowance is kindly requested.

Respectfully submitted,

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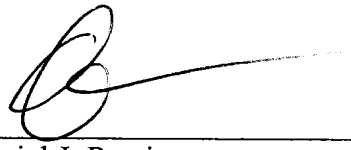

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